Overall Committee Scope (TC 7.5)

The Technical Committee on Smart Building Systems (SBS), TC 7.5, is concerned with the development and evaluation of technologies that could enable the widespread application of smart building systems. "Smart" buildings should take advantage of automation, communications, and data analysis technologies in order to operate in the most cost-effective manner. This implies integration of building services such as HVAC, fire, security, and transportation; the automation of many of the operation and maintenance functions traditionally performed by humans; and the interaction with outside service providers such as utilities, energy providers, and aggregators. Currently, three subcommittees form the backbone of the TC's activities: fault detection and diagnostics, building/utility interface, and wireless applications.

Building/Utility Interface

This new subcommittee will explore and develop ideas and research work statements to improve the building and utility interactions (and more specifically the electric grid). The research will focus on developing enabling technologies for seamless interaction of smart building components and utilities and other building services. An important aspect of this work is to identify the information that is necessary to support smart building technologies, and to identify the requirements of communication protocols to support the exchange of this information between different building services, between buildings and utilities, between multiple buildings, with outside service providers.

The importance of a stable and reliable electric power grid to life and the economy in the 21st century has been underscored by two major events over the last decade: a major black out on the east coast of North America and wildly varying electricity prices in California during an attempt at restructuring the electricity marketplace. In response to these events many organization (DOE, EPRI, and CEC) have started research activities to find ways to modernize the grid. However, there a significant gaps in the research activities, especially as they relate to buildings. Since buildings consume over 70% of the electric in the U.S., they have to part of the solution to modernize the grid. ASHRAE has traditionally developed technologies, standards, and guidelines for buildings. Therefore, this subcommittee can play a major role in continuing this effort.

Building/Utility Interface Subcommittee
ASHRAE TC 7.5, Smart Building Systems
2007 Summer Meeting
Long Beach, California

Location: **Convention Center, Room 102C**
Date: **Sunday, June 24th, 2007**
Time: **5:00 - 6:00 p.m.**

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New research ideas	20

The Computational Grid is an emerging distributed computing paradigm with active research, user, and commercial development communities. Relatively mature software infrastructures that are freely available have engendered a host of large-scale development and deployment efforts. Experimental research that investigates more powerful and easier-to-use techniques continues, and commercial interest is robust.

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Excerpt from: The Grid: Feng Shui for the Terminally Rectilinear, Martha Stewart

Question: Is there a way to "harvest" demand reduction potential by employing lessons learned from computational grid methods?

Excerpt from website:

The Network Operations Center [NOC] effectively connects supply (utilities and grid operators) with demand (end-use businesses and organizations). When high peak demand threatens grid stability, increasing the probability of blackouts and brownouts, the utility or grid operator sends a notification signal to the NOC, which the NOC immediately relays to all participating customers. The NOC automatically initiates *customized demand response protocols* at customers' sites, and the aggregate demand reduction provides immediate grid relief. During the demand response event, the NOC communicates constantly with the utility or grid operator to *report customer meter data and continuously monitors customer performance*; [company name] personnel contact any troubled customer sites to ensure they *maximize their performance*. When the demand response event concludes, the NOC receives a second signal from the utility or grid operator, notifies participating customers, and automatically restores normal operations at customers' sites.

Question: Given that there are commercially available products and services, what research still needs to be done?

Discuss RTARs in Progress	10

- Residential (Jin Wen)
- Commercial (Rich Hackner) Second Draft

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